

Translation

Excerpt from: Preliminary International Examination Report PCT/DE 03/01861

I. Basis of the Report

Description, Pages

2 - 6 received on June 21, 2004 with letter dated June 19, 2004

1 - 2 received on August 30, 2004 per telefax

Claims, No.

1 - 4 received on June 21, 2004 with letter of June 19, 2004

Drawings, pages

1/2 in the originally submitted version

2/2 received on June 21, 2004 with letter of June 19, 2004

V. 1 Determination of Novelty (N) yes: Claims 1-4

no: Claims

Inventive Activity (IS)

yes: Claims 1 - 4

no: Claims

Commercial Applicability (IA)

yes: Claims 1-4

no: Claims

1. **Subject:** Closing Lid

2. **Preamble:** The preamble of the independent Claims 1 and 4 is based on US3430777A., wherein is disclosed a closing lid of two plastic components, a dish-like hard lid element and an elastic insert element, which can be locked together in mounted state.

3. **Object solved by the Application**

Simpler installation without any cementation with simultaneous reliable sealing effect.

4. **Novelty, inventive activity, industrial applicability**

Vis-a-vis the state of the art, it appears new and inventive according to Claim 1, to shape out two successively arranged locking regions,
which establish a pre-mounting- and an end-mounting position.

Also, the Claim Subject, with respect to closing of openings

of a motor vehicle body, for example, appears industrially applicable.

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Closing Lid

The invention relates to a closing lid, comprising two plastic components, for tight closing of an opening in a support plate, especially a motor vehicle body, with a dish-like designed lid element and an insert element according to the preamble of Claim 1.

This type of closing lid, having the characteristics of the preambles of Claims 1 and 4 is already known as state of the art (US-A-3,430,777) which serves, in particular, for closing of a bottle opening. It has a corresponding constructive design, i.e. a longitudinal cork-like element with a middle peg element, which traverses a

lid element.

Further state of the art is a closing lid (US-A-3,244,308) which is intended as bottle seal and merely comprises one material component. The outer circumference acts under pressure upon the inner circumference of a bottle neck.

Further state of the art is a device for measuring a fluid level within an opening (US-A-3,923,195).

In addition, a closing lid is known comprising two plastic components (DE 195 46 160 A1). Here, the lid element consists of a core component of a hard material, whereas a cover element, of an exterior component, connected with the lid element, is made of a softer material. Said sealing element can be glued together, at least at its outer edge, with a support plate.

Further more, part of the state of the art is a closing lid for tight sealing of an opening in a support plate (DE 43 27 945 A1). Here, the core component consists of a hard material, with a shell-component being provided of softer material, which envelopes the core-component. Said shell component can

be glued together at the outer edges with the support plate.

In contrast thereto, it is the object of the present invention to create a closing lid according to the preamble of Claim 1, which guarantees, with simple installation, without use of any cementing method, tight sealing of an opening of a support plate, in particular for application with a motor vehicle body.

Said object is solved according to the characterizing portion of Claim 1. Due to the fact that the locking region of the intermediate ring can be embedded in two successively arranged counter-locking stops at the outer circumference of the collar of the insert element for pre-mounting or for final mounting, with resulting easy handling during employment of the invention-specific closing lid, which is of significant and cost-saving benefit, especially in the branch of the motor-vehicle supplier industry.

Beneficial further developments become apparent from the sub-claims.

In the following, the invention is described in more detail using exemplary

embodiments represented in the drawing. The drawing depicts as follows:

Fig. 1 a schematic center section through a lid element and an insert

element before pre-mounting,

Fig. 2 a bird's eye view of the lid element according to Fig. 1,

Fig. 3 an enlarged representation in the region X according to Fig. 1,

Fig. 4 a perspective view of the lid element according to Fig. 1,

Fig. 5 a specific embodiment similar to Fig. 1 in pre-mounted position,

Fig. 6 the specific embodiment according to Fig. 5 in mounted position;

Fig. 7. another embodiment possibility of the invention in schematic

center section.

Fig. 1 represents the invention-specific closing lid which comprises two

plastic components. Said closing lid serves for tight sealing of an opening 38, represented

for example in Fig. 5 and 6, in a support plate 35, especially a motor vehicle body.

The closing lid consists of a dish-like designed lid element 1 and an insert element 2.

The insert element 2 is made of a hard component and presents a center region 10, which

in mounted state of the closing lid acts upon a plate 15 in form of an elastic counter region 20 of the closing element 10.

The elastic counter region 20 of the lid element 1 is connected via a thinner cone section 18 with a collar 21 of the lid element 1.

It can, moreover, be recognized that relative to the insert element 2, the center region 10 is designed as hollow cylinder 12. Said hollow cylinder 12 is connected with the cover plate 14 of the insert element 2.

Between the cover plate 14 of the insert element 2 and the hollow cylinder 2 are provided a number of over the circumference distributed recesses 16.

Collar 21 of the lid element 1 passes over by means of the intermediate ring 11 into a cover region 25, which, in mounted state of the cover lid acts upon the support plate 35 in the region of the opening 38.

It is particularly evident from Fig. 1 and 3, that the intermediate ring 22 presents a locking region 30, which consists, for example, of a number of over the circumference distributed locking teeth 30'. The collar 21 of the lid element 1

additionally presents, on the inside, a number of over the circumference distributed cross-pieces 65.

The insert element 2 has a collar 40, which is equipped with two successively positioned counter-locking stops 31 and 32.

For pre-mounting, the insert element 2 is pressed, according to Fig. 5, in the direction of the arrow I, into the lid element 1 until lock-stop 30 of the lid element 1 embeds itself in the counter-lock-stop 21 of the insert element 2 (according to Fig. 5 and 6, the lock-stop 30 consists of a circumferential ring). I said state it is possible to install the closing lid comprising units 1 and 2, in the opening 38 of a support plate 35. Following said insertion, the insert element 2 is, in turn, pressed in arrow direction I, into the lid element 1 until the lock-stop 32 embeds itself into the lock-stop 30 of lid element 1. During this movement, the hollow cylinder 12 presses on plate 15 and moves same in arrow direction II, due to the elastic cone-shaped intermediate region 18. As a result, collar 21 of the elastic lid element 1 deforms itself, which causes impingement on the neighboring

region of the opening 38 of the support plate 35, thus guaranteeing tight sealing of said opening 38.

The cover plate 14 of the insert element protrudes beyond collar 40, whereby, in mounted state according to Fig. 6, said cover plate 14 embeds itself in a corresponding recess 50 of the lid element 1.

In the specific embodiment according to Fig. 7, there exists the possibility that the hollow cylinder 12 presents a lock-stop 51, which can be embedded in two successively positioned counter-lock stops 53 and 55 of a peg 60. Said peg 60 is located at plate 15 of the lid element 1. Once again, two positions can be adopted, namely pre-mounting position and final mounting position, similar to the representation according to Fig. 5 and 6.

As a result of the constructively simple design of the closing lid, comprising lid element 1 and insert element 2, tight closure of an opening 38 in a support plate 35 is effected in simple fashion, in various embodiment possibilities, with

the entire unit initially being insertable during pre-mounting in the opening 38,
and then closing same in perfect and functionally safe manner during final mounting .